

WHAT IS CLAIMED IS:

1. A machine for printing on containers and applying labels thereto, comprising:

a printing blanket cylinder having a printing blanket thereon with a blank area corresponding to a predetermined  
5 area of a container on which no ink is applied;

inking assemblies for applying ink to the printing blanket;

a support member having a plurality of mandrels for holding containers thereon to be printed;

10 a support member drive for moving the support member to position each mandrel in sequence at a printing position adjacent the printing blanket;

a mandrel drive for rotating each mandrel positioned adjacent the printing blanket in order to rotate a container  
15 on said mandrel at the printing position against the printing blanket to print on an exterior surface of said container;

a label applying device for applying a label to the predetermined area of the container on which no ink is  
20 applied, substantially simultaneously with printing of the exterior surface of the container; and

a control arrangement for controlling timing of said label applying device, said support member drive and said mandrel drive in a manner to ensure that the label is  
25 applied to the predetermined area on each container.

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2. A machine according to claim 1, wherein said label applying device is positioned at the printing position.

3. A machine according to claim 1, wherein the label applying device includes:

a grid positioned in facing relation to the exterior surface of the container to be printed;

5 a web transport assembly for transporting a web having labels spaced apart thereon to a position adjacent said grid;

a peeling device for peeling each label from said web at said position adjacent said grid;

10 a vacuum supply behind said grid for applying a vacuum through said grid to hold the peeled label against the grid, with an adhesive side of the label facing out; and

an arrangement for applying the held label to the predetermined area of the container against the force of the  
15 vacuum supply.

4. A machine according to claim 3, wherein said arrangement includes at least one air jet for blowing said held label onto the predetermined area of the container.

5. A machine according to claim 3, wherein said peeling device includes a sharp edge about which said web is transported.

6. A machine according to claim 1, wherein said control arrangement includes a central processing unit for controlling said timing.

7. A machine according to claim 1, further comprising an adjustment arrangement for moving at least a portion of the label applying device relative to the mandrel holding the container to be printed.

8. A machine according to claim 7, wherein said adjustment arrangement includes:

at least one linear adjustment mechanism; and  
at least one angular adjustment mechanism.

9. A machine according to claim 8, wherein said at least one linear adjustment mechanism includes:

a first linear adjustment assembly for adjusting said at least a portion of the label applying device in a first  
5 linear direction;  
a second linear adjustment assembly for adjusting said at least a portion of the label applying device in a second

linear direction which is substantially orthogonal to said first direction; and

- 10        a third linear adjustment assembly for adjusting said at least a portion of the label applying device in a third linear direction which is substantially orthogonal to said first and second directions.

10.    A machine according to claim 8, wherein said at least one angular adjustment mechanism includes:

- 5        a first angular adjustment assembly for adjusting said at least a portion of the label applying device in a first angular direction; and

         a second angular adjustment assembly for adjusting said at least a portion of the label applying device in a second angular direction which is substantially orthogonal to said first angular direction.

11.    A machine according to claim 7, wherein said at least a portion of the label applying device includes a grid positioned in facing relation to the mandrel holding the container to be printed, for holding a label thereon.

12.    A method for printing on containers and applying labels thereto, comprising the steps of:

applying ink to a printing blanket with a blank area  
corresponding to a predetermined area of a container on  
5 which no ink is to be applied;

positioning containers to be printed on a plurality of  
mandrels;

moving the mandrels in sequence to a printing position  
adjacent the printing blanket;

10 rotating each mandrel positioned adjacent the printing  
blanket in order to rotate a container on said mandrel at  
the printing position against the printing blanket to print  
on an exterior surface of said container;

applying a label to the predetermined area of each  
15 container on which no ink is applied, substantially  
simultaneously with the printing on the container; and

controlling timing of said steps of label application,  
mandrel movement and mandrel rotation in a manner to ensure  
that the label is applied to the predetermined area on each  
20 container.

13. A method according to claim 12, wherein said step of  
applying the label includes the step of applying the label  
at the printing position.

14. A method according to claim 12, wherein said step of  
applying the label uses a label applying device including a

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grid positioned in facing relation to a mandrel holding a container, and includes the steps of:

- 5        transporting a web having labels spaced apart thereon to a position adjacent said grid;

         peeling each label from said web at said position adjacent said grid;

- applying a vacuum through said grid to hold the peeled  
10 label against the grid, with an adhesive side of the label facing out; and

         forcing the held label on the predetermined area of the container against the force of the vacuum supply.

15. A method according to claim 14, wherein said step of positioning includes the step of blowing said held label onto the predetermined area of the container.

16. A method according to claim 14, wherein said step of peeling includes the step of transporting the web around a sharp edge adjacent the grid.

17. A method according to claim 12, further comprising the step of adjusting the position of at least a portion of the label applying device relative to a position at which the label is to be applied to the container.

18. A method according to claim 17, wherein said step of adjusting includes the steps of:

providing at least one linear adjustment of said at least a portion of the label applying device relative to the label applying position; and

providing at least one angular adjustment of said at least a portion of the label applying device relative to the label applying position.

19. A method according to claim 18, wherein said step of providing at least one linear adjustment mechanism includes the steps of:

adjusting said at least a portion of the label applying device in a first linear direction;

adjusting said at least a portion of the label applying device in a second linear direction which is substantially orthogonal to said first direction; and

adjusting said at least a portion of the label applying device in a third linear direction which is substantially orthogonal to said first and second directions.

20. A method according to claim 18, wherein said step of providing at least one angular adjustment mechanism includes the steps of:

adjusting said at least a portion of the label applying  
5 device in a first angular direction; and

adjusting said at least a portion of the label  
applying device in a second angular direction which is  
substantially orthogonal to said first angular direction.

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